

Supporting Information

**Light-induced perovskite dynamic transformation enabling
photodetector mimicking neuromorphic vision sensing system**

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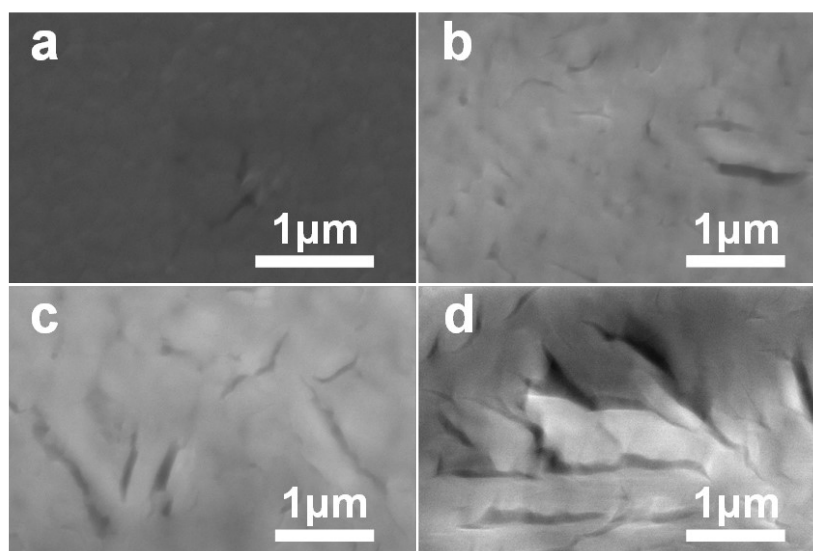


Fig. S1 SEM images of (a) pristine MAPbI₃ film and films exposed to NH₃ atmosphere for (b) 10 s, (c) 20 s, (d) 30s.

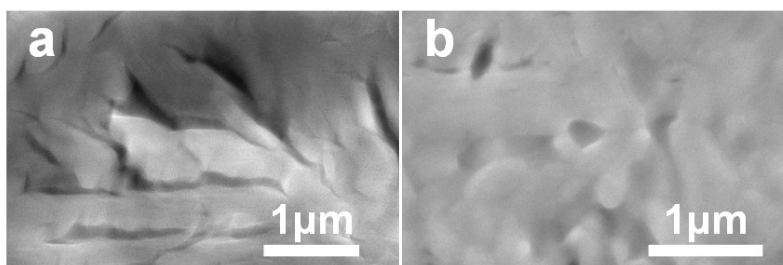


Fig. S2 SEM images of 30s-NH₃-treated MAPbI₃ films (a) without and (b) with irradiation recovery.

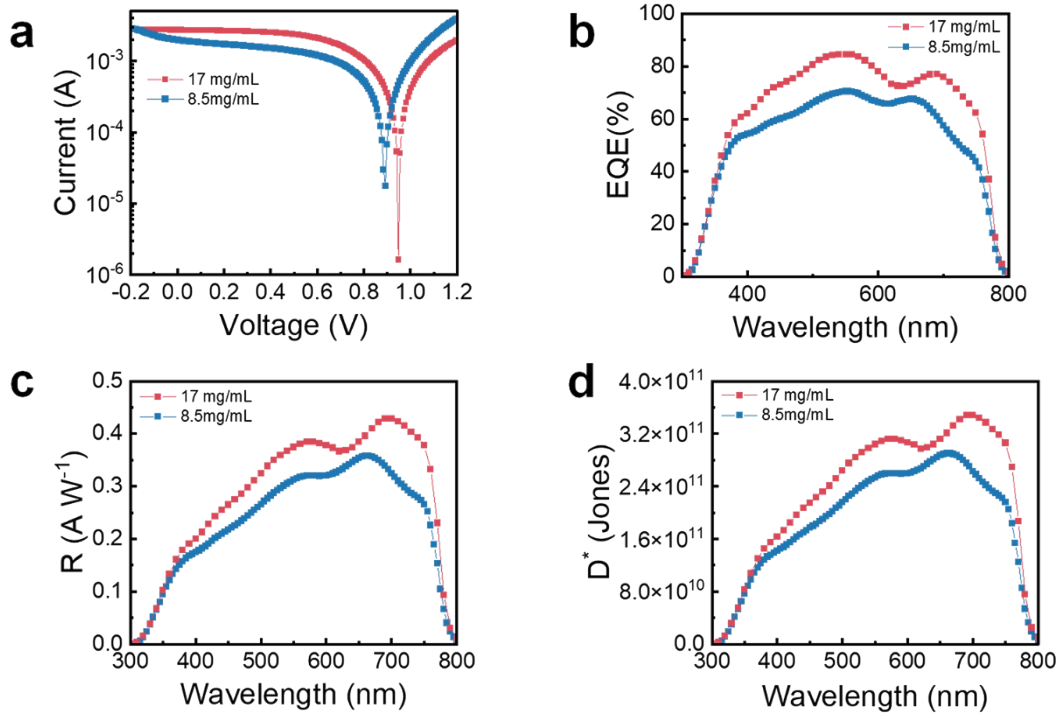


Fig. S3 Device characterizations of different PCBM thickness. (a) I-V curves of devices under AM 1.5G illumination. (b) EQE. (c) Responsivity. (d) Specific detectivity (D^*).

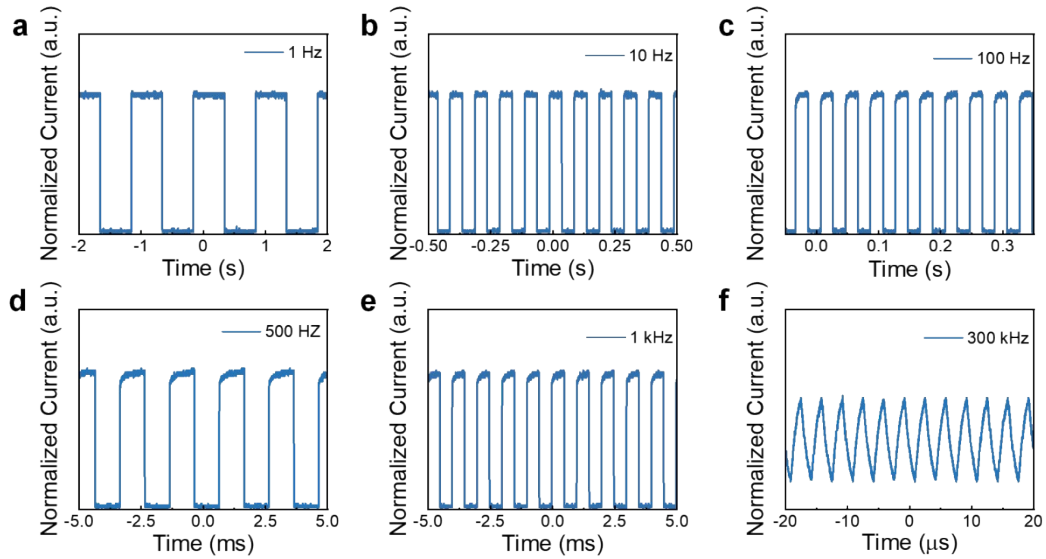


Fig. S4 Response to temporal square-wave signals at different frequency (a)-(f) of 1 Hz, 10 Hz, 100 Hz, 500 Hz, 1 kHz, 300 kHz.

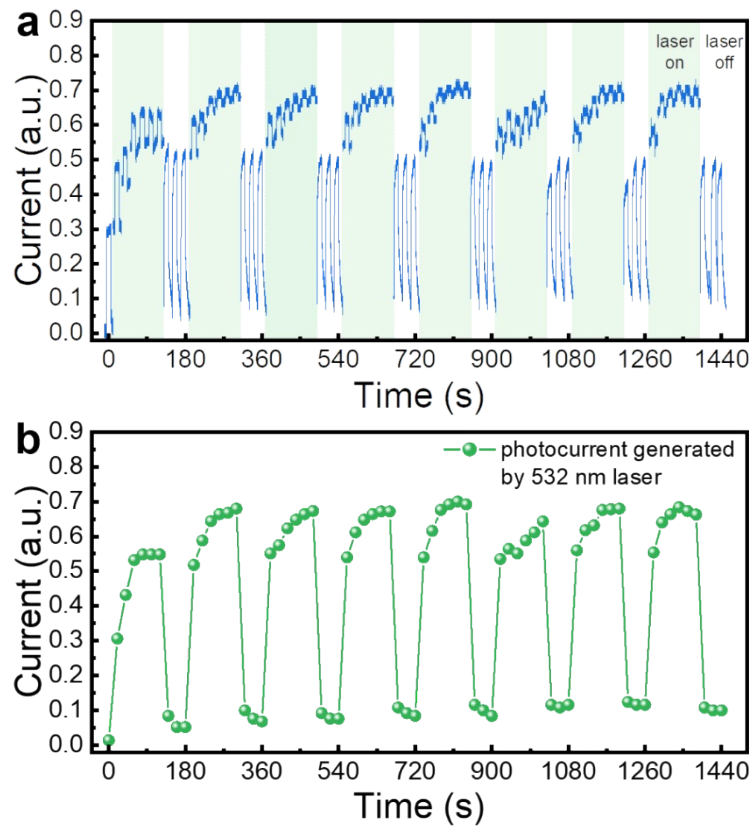


Fig. S5 (a) Time-dependent response of photodetector in 8 cycles, the green area indicates “laser on”, the white area indicates “laser off”. (b) Corresponding changes of photocurrent generated by 532 nm laser in 8 cycles.